



## Tropical Ecosystems: The Lungs of the Earth

Ashima Dey Dutta\*

Department of Zoology, Kalyani University, India

### Abstract

Tropical ecosystems are among the most diverse and dynamic environments on Earth. Found in regions near the equator, these ecosystems include tropical rainforests, coral reefs, mangroves, and savannas. They are essential for biodiversity, climate regulation, and supporting human livelihoods.

**Keywords:** Tropical ecosystems; Savannas; Mangroves

### Introduction

**Tropical Rainforests:** These lush, evergreen forests thrive in regions with high rainfall and constant warm temperatures. Rainforests, such as the Amazon in South America and the Congo Basin in Africa, are renowned for their incredible biodiversity. They house millions of plant and animal species, including iconic creatures like jaguars, orangutans, and countless bird and insect species. These forests are vital for carbon sequestration, playing a crucial role in mitigating climate change by absorbing and storing large amounts of atmospheric CO<sub>2</sub> [1-3].

### Methodology

Often referred to as the "rainforests of the sea," coral reefs are underwater structures built by coral polyps in warm, shallow ocean waters. Major coral reefs, such as the Great Barrier Reef in Australia and the Caribbean reefs, support a vast array of marine life, including fish, mollusks, and crustaceans. Coral reefs provide essential ecosystem services, such as coastal protection from erosion, supporting fisheries, and contributing to tourism economies.

Mangrove forests are coastal wetlands found in tropical and subtropical regions, characterized by salt-tolerant trees and shrubs. These ecosystems, found in areas like Southeast Asia and the Caribbean, are crucial for stabilizing coastlines, preventing erosion, and providing breeding grounds for many marine species. Mangroves also act as carbon sinks, storing significant amounts of carbon in their biomass and sediments.

Savannas are grasslands with scattered trees, found in regions such as the African Serengeti and parts of South America and Australia. These ecosystems experience a distinct wet and dry season and support large herbivores like elephants, giraffes, and antelope. Savannas play a role in the carbon cycle by storing carbon in their vegetation and soils, and they are important for maintaining the ecological balance of the regions they inhabit [4-6].

### Ecological importance

Tropical ecosystems are vital for the health of our planet. They regulate global and regional climates through their roles in the carbon and water cycles. Rainforests influence weather patterns and precipitation through the release of water vapor, while coral reefs protect coastlines from storm surges. Mangroves and savannas contribute to carbon sequestration, helping to mitigate climate change.

### Threats and conservation

Tropical rainforests are being cleared for agriculture, logging, and infrastructure development, leading to habitat loss and species extinction. This deforestation also contributes to climate change by

releasing stored carbon into the atmosphere. Rising temperatures and changing weather patterns affect tropical ecosystems. Coral reefs are particularly vulnerable to bleaching caused by elevated sea temperatures, while altered rainfall patterns impact rainforest health and savanna ecosystems.

Pollution from agricultural runoff, industrial activities, and plastic waste affects both terrestrial and marine tropical environments. Chemicals and waste can degrade habitats, harm wildlife, and disrupt ecological processes. Overfishing in coral reefs depletes fish populations and damages reef structures, affecting marine biodiversity and the livelihoods of communities dependent on fishing [7-9].

### Conservation efforts

Establishing national parks and marine reserves helps safeguard key habitats from exploitation. These protected areas are crucial for preserving biodiversity and maintaining ecosystem functions. Promoting sustainable land-use and fishing practices reduces environmental impacts. Certifications for sustainable forestry and seafood help guide responsible practices.

Efforts to restore degraded ecosystems, such as reforestation and coral reef rehabilitation, aim to rebuild ecological balance and enhance resilience. Engaging local communities in conservation efforts ensures that they benefit from protecting their natural resources, fostering stewardship, and improving livelihoods [10].

### Conclusion

Tropical ecosystems are invaluable for their biodiversity, climate regulation, and support for human communities. Protecting and conserving these vital environments is essential for maintaining ecological balance and addressing global environmental challenges. Through dedicated conservation efforts and sustainable practices, we can ensure the continued health and vitality of tropical ecosystems for future generations.

\*Corresponding author: Ashima Dey Dutta, Department of Zoology, Kalyani University, India, E-mail: ashima78@yahoo.com

**Received:** 02-Aug-2024, Manuscript No: jee-24-144637, **Editor Assigned:** 05-Aug-2024, pre QC No: jee-24-144637 (PQ), **Reviewed:** 19-Aug-2024, QC No: jee-24-144637, **Revised:** 22-Aug-2024, Manuscript No: jee-24-144637 (R), **Published:** 29-Aug-2024, DOI: 10.4172/2157-7625.1000551

**Citation:** Ashima DD (2024) Tropical Ecosystems: The Lungs of the Earth. J Ecosys Ecograph, 14: 551.

**Copyright:** © 2024 Ashima DD. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

---

## References

1. Kogawa AC, Cernic BG, do Couto LGD, Salgado HRN (2017) Synthetic detergents: 100 years of history.
2. Saudi Pharm J 25: 934-938.
3. Li Y, Yen H, Lei Q, Qiu W, Luo J, et al. (2020) Impact of human activities on phosphorus flows on an early eutrophic plateau: A case study in Southwest China. *Sci Total Environ* 714: 136-851.
4. Lind OT (1979) *Hand book of Common Methods in Limnology* (2<sup>nd</sup> ed.).
5. Livanou E, Lagaria A, Psarra S, Lika K (2017) Dissolved organic matter release by phytoplankton in the context of the Dynamic Energy Budget theory. *Biogeosciences Discussions* 1-33.
6. Lund J (1965) The ecology of the freshwater phytoplankton. *Biological Reviews* 40: 231-290.
7. Majeed OS, Al-Azawi AJ, Nashaat MR (2022) The Effect of Tharthar-Tigris Canal on the Environmental Properties of the Tigris River Northern Baghdad, Iraq. *Baghdad Sci J* 1177-1177.
8. Mazis MB, Settle RB, Leslie DC (1973) Elimination of phosphate detergents and psychological reactance. *J Mark Res* 10: 390-395.
9. McLaughlin MJ (1984) Land application of sewage sludge: Phosphorus considerations South African. *Int j plant soil sci* 1: 21-29.
10. Mustafa MH, Jankeer MH (2007) Quality Difference between Two Location on Tigris River Within Mosul City. *Rafidain journal of science* 18:1.
11. Nancy NR (2002) Nitrogen in Aquatic Ecosystems. *AMBIO* 31: 102-112.